

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
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Response to ISR = June 16, 2006  
Response to WO = July 18, 2006

PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT AND  
THE WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing  
(day/month/year) 18 APR 2006

|   |   |
|---|---|
| Applicant's or agent's file reference<br>14160-2PCT | FOR FURTHER ACTION See paragraphs 1 and 4 below                             |
| International application No.<br>PCT/US04/37587     | International filing date<br>(day/month/year) 13 November 2004 (13.11.2004) |
| Applicant<br>BIOVENTURES, INC.                      |   |

1.  The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

**When?** The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 338.82.70.

For more detailed instructions, see the notes on the accompanying sheet.

2.  The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3.  With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

|  |   |
|--|---|
| Name and mailing address of the ISA/ US<br>Mail Stop PCT, Attn: ISA/US<br>Commissioner for Patents<br>P.O. Box 1450<br>Alexandria, Virginia 22313-1450<br>Facsimile No. (703) 305-3230 | Authorized officer<br>Jehanne S. Sitton<br>Telephone No. 571-272-0500 |
|--|---|

Form PCT/ISA/220 (January 2004)

(See notes on accompanying sheet)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

|   |  |  |
|---|--|--|
| Applicant's or agent's file reference<br>14160-2PCT | <b>FOR FURTHER ACTION</b><br><small>see Form PCT/ISA/220<br/>as well as, where applicable, item 5 below.</small> |  |
| International application No.<br>PCT/US04/37587     | International filing date (day/month/year)<br>13 November 2004 (13.11.2004)                                      | (Earliest) Priority Date (day/month/year)<br>14 November 2003 (14.11.2003) |
| Applicant<br>BIOVENTURES, INC.                      |  |  |

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 6 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

a. With regard to the language, the international search was carried out on the basis of:



the international application in the language in which it was filed.



a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b.  With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2.

Certain claims were found unsearchable (See Box No. II)

3.

Unity of invention is lacking (See Box No. III)

4. With regard to the title,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the abstract,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. \_\_\_\_\_



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.



b. none of the figures is to be published with the abstract.

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US04/37587

**Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)**

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

## a. type of material

a sequence listing  
 table(s) related to the sequence listing

## b. format of material

on paper  
 in electronic form

## c. time of filing/furnishing

contained in the international application as filed  
 filed together with the international application in electronic form  
 furnished subsequently to this Authority for the purposes of search

2.  In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US04/37587

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.: because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:  
Please See Continuation Sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

|                          |   |
|--------------------------|---|
| <input type="checkbox"/> | The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.   |
| <input type="checkbox"/> | The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation. |
| <input type="checkbox"/> | No protest accompanied the payment of additional search fees.   |

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US04/37587

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(8) : C07H 21/04  
US CL : 536/23.1

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 536/23.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Continuation Sheet

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
| A          | PETRYSHEN, T.L. et al. Evidence for Susceptibility Locus on Chromosome 6q Influencing Phonological Coding Dyslexia. American Journal of Medical Genetics. 2001. Vol 105, pages 507-517. | 1, 2                  |
| P, A       | HEISER, P. et al. Molecular Genetic Aspects of Attention-Deficit/Hyperactivity Disorder. Neuroscience and Biobehavioral Reviews. October 2004. Vol 28, pages 625-641.                   | 1, 2                  |

|                          |   |                          |  |
|--------------------------|---|--------------------------|--|
| <input type="checkbox"/> | Further documents are listed in the continuation of Box C.  | <input type="checkbox"/> | See patent family annex.   |
| *                        | Special categories of cited documents:  | "T"                      | later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  |
| "A"                      | document defining the general state of the art which is not considered to be of particular relevance  | "X"                      | document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone   |
| "E"                      | earlier application or patent published on or after the international filing date   | "Y"                      | document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art |
| "L"                      | document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "&"                      | document member of the same patent family  |
| "O"                      | document referring to an oral disclosure, use, exhibition or other means  |                          |  |
| "P"                      | document published prior to the international filing date but later than the priority date claimed  |                          |  |

|   |  |
|---|--|
| Date of the actual completion of the international search   | Date of mailing of the international search report |
| 17 October 2005 (17.10.2005)  | 18 APR 2006  |
| Name and mailing address of the ISA/US  | Authorized officer                                 |
| Mail Stop PCT, Attn: ISA/US<br>Commissioner for Patents<br>P.O. Box 1450<br>Alexandria, Virginia 22313-1450<br>Facsimile No. (703) 305-3230 | Jehanne S. Sitton<br>Telephone No. 571-272-0500    |

Form PCT/ISA/210 (second sheet) (April 2005)

**BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING**

Group 1, claim(s) 1-2, in part, drawn to nucleic acids from human chromosome 5 which comprise an allele of each of at least two microsatellite markers flanking SEQ ID NO: 1, in combination on chromosome 5, and in combination with additional genetic material as set forth in claim 2.

Group 2, claim(s) 3-11, in part, drawn to a method of diagnosing dyslexia or a predisposition to dyslexia by analyzing the presence of one or more of haplotype 8, 9, or 10, or nucleic acids of claim 2.

This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In order for more than one species to be examined, the appropriate additional examination fees must be paid. The species are as follows: It is noted that the claims in group 2, refer to species in claims 1 and 2, therefor, if applicant further elects group 2, the following species will apply to either group 1 or group 2.

In claim 1, the species are haplotype 8, haplotype 9, or haplotype 10.

In claim 2, section b, the species are residue 2286 or residue 3282. In claim 2, section c, the species are haplotype 1, haplotype 2, haplotype 3, haplotype 4, haplotype 5, haplotype 6, or haplotype 7.

The first named species is drawn to haplotype 8 for claim 1, residue 2286 for section b of claim 2, and haplotype 1 for section c of claim 2. Therefore, if applicant does not wish to pay for additional groups, the first named group, claims 1-2, directed to the species of haplotype 8, residue 2286, and haplotype 1 will be searched and examined. If applicant wishes to pay for an additional group, or additional species, applicant is requested to indicate such.

The inventions listed as Groups 1 and 2 do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Claim 1 is drawn to genetic material from human chromosome 5 which comprises certain alleles. Such material encompasses an array of nucleic acids which include the selected alleles. Fodor et al (US Patent 6,582,908) teaches an array of all possible 10 mer nucleic acids, which reads on the genetic material of claim 1. Therefor, claim 1 does not represent a special technical feature over the prior art. Accordingly, the claims lack the same or corresponding special technical feature.

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: Each species is drawn to a different haplotype or mutation. The species are therefore drawn to structurally and functionally distinct nucleic acids. As such, the different species do not share the same or corresponding special technical feature.

**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/US04/37587

Continuation of B. FIELDS SEARCHED Item 3:  
East, Caplus, Medline, GenEmbl, Geneseq, Issued Patents database, EST database  
search terms: chromosome 5, dyslexia, microsatellite, D5S1487, D5S617, SEQ ID NO: 1